

# UNITED STATES PATENT OFFICE.

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## BREAD-CRUMBING MACHINE.

SPECIFICATION forming part of Letters Patent No. 540,553, dated June 4, 1895.

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*To all whom it may concern:*

Be it known that I, JOSEPH LEE, a citizen of the United States, residing at Auburndale, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Bread-Crumbing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to machines for crumbing bread and is intended more particularly for use in hotels or restaurants, where a large quantity of bread crumbs are used in cooking although my machine will be found to be useful in private families where any considerable amount of bread is to be crumbed.

By the use of my invention the scraps and crusts of bread which come from the table can be readily crushed and crumbed, thereby effecting a great saving in establishments where the bread waste from the table is considerable.

My invention is of such a character also that fresh bread can be readily crumbed and reduced to the proper fineness, a matter of some difficulty where the bread is new and inclined to roll rather than to crumb, when crushed.

I will now describe my invention in detail, having reference to the accompanying drawings, and will point out the novel features of the same more particularly in the claims, appended to this specification.

In the drawings, Figure 1 is a side elevation of my improved machine. Fig. 2 is a central vertical sectional view. Fig. 3 is an end view, and Fig. 4 is a transverse vertical sectional view. Fig. 5 is an enlarged plan view to show the arrangement of the crumbing-shafts and driving-gears. Fig. 6 is an enlarged end view, showing the relation of the driving-gears to one another.

Referring to the drawings by letter, A denotes the body or trough of my machine, which I preferably form of sheet metal. Said trough A has a rounded bottom which is perforated as shown, and at each end of the trough are supporting legs *a*. The sides of the trough A flare outwardly slightly so that the trough has an inverted cone shape in

transverse section. The ends of the trough A are closed by means of wooden end pieces B, B' to which the edges of the sheet metal trough A are secured by rivets or in any other suitable manner. Along the upper edges of the sides of the trough A I secure iron straps C which give greater rigidity to the structure.

Journaled in the end pieces B, B' are a series of shafts E, preferably five in number and arranged in two horizontal rows (see Fig. 3) with three shafts in the upper and two in the lower row. The said shafts E are provided with radial crumbling or tearing fingers *e* which are arranged so as that the said fingers *e* of the several shafts E mesh with one another. The ends of said shafts E project through the end piece B and are provided with pinions *e'* which engage with one another so as that the shafts E are rotated when power is applied to the middle shaft of the upper series.

By referring to the arrows found upon the drawings the direction of rotation of the several shafts will be apparent. The middle pinion of the upper series it will be observed, meshes with the pinion on the right in the upper series (Figs. 2 and 6) and the pinion shown in dotted lines on the shaft to the left in the lower series. The two pinions of the lower series mesh with each other and the upper and lower pinions on the left of each series mesh with each other. In order that the system of gearing may be clear I have referred to the pinions by numbers (1, 2, 3, 4 and 5) and will trace the meshing of the pinions and their relations to each other by the numerals applied to each pinion. Pinions 1, 2 and 3 mesh with one another, pinions 3 and 4 mesh, and pinions 3 and 5 mesh. It is obvious that any other source of power as a pulley secured to said shaft might be used if desired.

The gearing which connects the several shafts E is so arranged that the two outer shafts of the upper horizontal row rotate from the center of the trough outwardly, as is indicated by the arrows in Fig. 3, and consequently in opposite directions; while each of the two lower shafts rotates in the same direction as the outer shaft in the upper row just above it. By this arrangement of gearing the material to be crumbed is drawn down